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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
JEAN GILLES, JUDE

ART UNIT	PAPER NUMBER
2143	

DATE MAILED: 01/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>24 October 2005</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-18</u> is/are pending in the application.

  4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>31 October 2001</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

  Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

  Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

  a)☐ All   b)☐ Some * c)☐ None of:

  1.☐ Certified copies of the priority documents have been received.

  2.☐ Certified copies of the priority documents have been received in Application No. _____.

  3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)). ·

  * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
  Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
  Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

This office action is responsive to communication filed on 10/24/2005.

Response to Amendment

1.   This action is responsive to the application filed on November 10/24/2005. No

claims were amended. There are no newly added claims. Claims 1-18 are pending.

Claims 1-18 represent a method and apparatus for "Statistic-Preserving ACL flattening

system and method".

Response to Arguments

2.   Applicant's arguments with respect to claims 1, 10, 16, 17, and 18 have been

carefully considered, but are not deemed fully persuasive. Applicant's arguments are

deemed moot in view of the existing ground of rejection as explained here below.

        The dependent claims stand rejected as articulated in the First Office Action and

all objections not addressed in Applicant's response are herein reiterated.

Claim Rejections - 35 USC § 112

3.   Claim1, 10, 16, 17, and 18 are rejected under 35 U.S.C. 112, second paragraph,

as being indefinite for failing to particularly point out and distinctly claim the subject

matter which applicant regards as the invention. The term "eliminating from the plurality

of entries one or more entries that provide for one or more impossible actions" is

unclear. The specification mentions in page 5, line 30; page 10, lines 25-30, without

specifically defining what is meant by impossible action. In order to expedite the

prosecution of the application, the examiner assumes impossible action as a broad

action.

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 1-6, 10, 14, 15, 16, 17 and 18 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Vahalia et al (U.S. Patent No. 6,625,591) in view of O'Toole,

Jr. et al (U.S. Patent No. 6,279,112).

Regarding claim 1: Vahalia et al disclose the invention substantially as claimed.

Vahalia et al teach a method for transforming one or more lists for a data

communications system into a single list, each list of the one or more lists including a

plurality of entries, the method comprising:

removing non-terminating entries from the plurality of entries in the one or

more lists, the removing each non-terminating entry removing all but a last non-

terminating entry in any of the one or more lists (*fig. 4, items 61-64; column 6, lines

7-27*); and

eliminating from the plurality of entries one or more entries that provide for

one or more impossible actions (*column 6, lines 7-17*);

Vahalia et al further teach the removing of non-terminating entries and the eliminating of one or more entries that provide for impossible actions (*column 6, lines 7-17; note the impossible action is when trying to remove the last entry or make the last entry equal to zero*), but fail to teach producing a single list preserving tracing of the entries in the single list to the plurality of entries.

In the same field of endeavor, O'Toole, Jr. et al teach "*a method to permit the inquiry of which access tickets (entries) are in the user's access control list and to display the icons corresponding to each of the access tickets...*" [*see O'Toole, Jr.; column 6, lines 27-31*].

Accordingly, it would have been obvious to one of ordinary skill in the networking art at the time the invention was made to have incorporated O'Toole, Jr. et al's teachings of the racing of the entries in the list with the teachings of Vahalia et al, for the purpose of improving the ability of a network "*...to allow access to the directory to satisfy file access requests for searching ..*"as stated by Vahalia in lines 35-38 of column 2. O'Toogle also offers some motivation to combine. By this rationale, Claim 1 is rejected.

Regarding claim 2: The combination Vahalia - O'Toole, Jr. discloses the method of Claim 1 wherein each of the plurality of entries provides an indication of a source of the entry with an action code to create a pairing [*see* Vahalia; *column 5, lines 40-67*]. By this rationale **claim 2** is rejected.

Regarding claim 3: The combination Vahalia - O'Toole, Jr. discloses the

method of Claim 1 wherein the preserving tracing permits determining statistical

parameters of the data communication system [*see* Vahalia; *column 5, lines 40-67*]. By

this rationale **claim 3** is rejected.

Regarding claim 4: The combination Vahalia - O'Toole, Jr. discloses the

method of Claim 3 wherein the statistical parameters include counts of matched entries

[*see* Vahalia; *column 5, lines 40-67*]. By this rationale **claim 4** is rejected.

Regarding claim 5: The combination Vahalia - O'Toole, Jr. discloses the

method of Claim 1 wherein the removing and the eliminating is performed at a network

element of the data communication system [*see* Vahalia; *fig. 4, items 61-68; column 6,*

lines 7-27]. By this rationale **claim 5** is rejected.

Regarding claim 6: The combination Vahalia - O'Toole, Jr. discloses the

method of Claim 1 wherein the list of entries is an Action Control

List (ACL) and wherein each entry is an Action Control Entry (ACE) [*see O'Toole, Jr.;*

column 4, lines 10-16]. By this rationale **claim 6** is rejected.

Regarding claim 10: The combination Vahalia - O'Toole, Jr. discloses a data

routing system to administer entries, the data routing system comprising:

a network element configured to receive a plurality of Action Control Lists

(ACLs) organized to hold a plurality of Action Control Entries

(ACEs) [*see* Vahalia; *fig. 1, items 24-26; column 3, lines 61-67*];

a processor configured to receive the plurality of ACLS holding the plurality of

ACES [*see* Vahalia; *fig. 1, item 22*], the processor adapted to:

remove any non-terminating entries from the plurality of ACES in the

plurality of ACLS, wherein the removal of each non-terminating entry removes all but a

last non-terminating entry in any of the ACLS [*see Vahalia; fig. 4, items 61-64; column

6, lines 7-27*]; and

eliminate from the ACES one or more ACES that provide for one or more

impossible actions if present, wherein the removal of non terminating entries and the

elimination of one or more ACES that provide for impossible actions produce a single

list with entries, the single list configured to preserve tracing of the entries in the single

list to the plurality of ACES [*see Vahalia; column 6, lines 7-17*], and [*see O'Toole, Jr.;

column 6, lines 27-31*]. By this rationale **claim 10** is rejected.

Regarding claim 14: The combination Vahalia - O'Toole, Jr. discloses the data

routing system of Claim 10 wherein the one or more ACES provide for a plurality of

actions [*see O'Toole, Jr.; column 5, lines 45-67*]. By this rationale **claim 14** is rejected.

Regarding claim 15: The combination Vahalia - O'Toole, Jr. discloses the data

routing system of Claim 10 wherein the one or more ACES provide for one or more of:

encryption and decryption, web caching, tunneling, redirection to a

predetermined router interface, redirection to a separate processor or line card for one

or more of the encryption, decryption, web caching, and tunneling [*see O'Toole, Jr.;

column 6, lines 16-31*]. By this rationale **claim 15** is rejected.

Regarding claim 16: The combination Vahalia - O'Toole, Jr. discloses a

computer system comprising:

a processor [*see* Vahalia; *fig. 1, item 22*]; and

a memory, the memory including instructions, the processor for executing the

instructions, the instructions including encoding instructions for one or

more lists, each list including a plurality of entries [*see* Vahalia; *fig. 1, item 20-26;*

column 3, lines 60-67; column 4, lines 1-54], the encoding instructions including:

skip entry removal instructions for removing non-terminating entries

from the plurality of entries in the one or more lists, the removing each non-terminating

entries removing all but a last non-terminating entry in any of the one or more lists [*see*

Vahalia; fig. 4, items 61-64; column 6, lines 7-27]; and

impossibility entry elimination instructions for removing from the plurality of

entries one or more entries that provide for one or more impossible actions, wherein the

removal of non-terminating entries and the removal of one or more entries that provide

for impossible actions produce a single list preserving tracing of the entries in the single

list to the plurality of entries [*see Vahalia; column 6, lines 7-17*], and [*see O'Toole, Jr.;*

column 6, lines 27-31]. By this rationale **claim 16** is rejected.

Regarding claim 17: The combination Vahalia - O'Toole, Jr. discloses a

computer program product, the computer program product comprising :

signal bearing media bearing digital information adapted to include

programming, the digital information including:

a block configured to remove non-terminating entries from the plurality of entries in the one or more lists, the removing each non-terminating entry removing all but a last non-terminating entry in any of the one or more lists; and

a block configured to eliminate form the plurality of entries one or more entries that provide for one or more impossible actions; wherein:

the removal of non-terminating entries and the elimination of one or more entries that provide for impossible actions produce a single list preserving tracing of the entries in the single list to the plurality of entries [*see Vahalia; column 6, lines 7-17*], and [*see O'Toole, Jr.; column 6, lines 27-31*]. By this rationale **claim 17** is rejected.

Regarding claim 18: The combination Vahalia - O'Toole, Jr. discloses a network element configured to transform one or more lists for a network, each list including one or more entries, the network element comprising:

means for removing non-terminating entries from the one or more entries in the one or more lists, the removing each non-terminating entry removing all but a last non-terminating entry in any of the one or more lists [*see Vahalia; fig. 4, items 61-64; column 6, lines 7-27*]; and

means for eliminating from the one or more entries each entry that provides for one or more impossible actions, wherein the means for removing of non-terminating entries and the means for eliminating each entry that provides for impossible actions provide a means for producing a single list preserving tracing of the entries in the single list to the one or more entries [*see Vahalia; column 6, lines 7-17*], and [*see O'Toole, Jr.; column 6, lines 27-31*]. By this rationale **claim 18** is rejected.

6.   Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vahalia et al (U.S. Patent No. 6,625,591) and O'Toole, Jr. et al (U.S. Patent No. 6,279,112), in view of Ng et al (U.S. Patent No. 5,838,874).

Regarding claim 7: The combination of Vahalia - O'Toole, Jr. discloses the invention substantially as claimed. The combination teaches the method of Claim 1 wherein the one or more lists of data are action control lists (ACLs), the method further comprising the step of combining at least a first and a second ACL by combining each non-terminating entry in a first ACL with each entry in a second ACL [*see O'Toole, Jr.; column 8, lines 49-63*]; However the combination fails to disclose repeating the combining recursively to a third or more ACLS, if present, until each ACL is collapsed into the first ACL to create the single list .

In the same field of endeavor, Ng et al disclose"..*a recursive process to combine frames and using an interpolation in the frames from first to last...*"[*see Ng; column 35, lines 45-67*].

Accordingly, it would have been obvious to one of ordinary skill in the networking art at the time the invention was made to have incorporated Ng's teachings of using a recursive process on the ACLs with the teachings of Vahalia - O'Toole, Jr. for the purpose of improving the ability of a network "...*to allow access to the directory to satisfy file access requests for searching ..*"as stated by Vahalia in lines 35-38 of column 2.

7.   Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Vahalia et al (U.S. Patent No. 6,625,591), O'Toole, Jr. et al (U.S. Patent No. 6,279,112),

and Ng et al (U.S. Patent No. 5,838,874), in view of Kloth et al (U.S. Patent No.

6,643,260)

Regarding claim 8: The combination of Vahalia - O'Toole, Jr.- Ng discloses the

invention substantially as claimed. The combination teaches the method of Claim 7 ,

but fails to teach the single list holds a plurality of Action Control Entries (ACEs) that are

codeable into a first match engine capable of computing a large number of Boolean

expressions in parallel and returning an index of first matching ACES.

In the same field of endeavor, Kloth et al disclose "... a data vector engine in a

TCAM to resolve matching, giving priority to the first match to provide a way of

returning an index of the first matching.." [*see Kloth; column 8, lines 28-67; column 9,

lines 1-37*].

Accordingly, it would have been obvious to one of ordinary skill in the networking

art at the time the invention was made to have incorporated Kloth et al's teachings of

combining the ACL and the first matching engine with the teachings of Vahalia -

O'Toole, Jr.- Ng for the purpose of improving the ability of a network "... *to allow access

to the directory to satisfy file access requests for searching ..*"as stated by Vahalia in

lines 35-38 of column 2.

Regarding claim 9: The combination of Vahalia - O'Toole, Jr. – Ng - Cloth

discloses the method of Claim 8 wherein the first match engine is implemented

as one of a ternary content addressable memory (TCAM) and a hardware device

capable of computing a large number of Boolean expressions in parallel and returning

an index of first matching ACES [*see Kloth; column 8, lines 28-67; column 5, lines 46-*

67; column 6, lines 1-16]. By this rationale **claim 9** is rejected.

8.   Claims 11, 12, and 13are rejected under 35 U.S.C. 103(a) as being unpatentable

over Vahalia et al (U.S. Patent No. 6,625,591) and O'Toole, Jr. et al (U.S. Patent No.

6,279,112), in view of Kloth et al (U.S. Patent No. 6,643,260).

Regarding claim 11: The combination of Vahalia - O'Toole, Jr.- Kloth discloses

the invention substantially as claimed. The combination teaches the data routing

system of Claim 10, but fail to expressly disclose a hardware device coupled to receive

the single list with entries, the hardware device being a parallel-first match engine.

In the same field of endeavor, Kloth et al disclose "... a TCAM aggregate table .."

[*see Kloth; column 8, lines 28-67; column 9, lines 1-37*].

Accordingly, it would have been obvious to one of ordinary skill in the networking

art at the time the invention was made to have incorporated Kloth et al's teachings of a

TCAM with the teachings of Vahalia - O'Toole, Jr. for the purpose of improving the

ability of a network "...*to allow access to the directory to satisfy file access requests for*

searching .."as stated by Vahalia in lines 35-38 of column 2.

Regarding claim 12: The combination of Vahalia - O'Toole, Jr.- Kloth teaches

the data routing system of Claim 11 wherein the hardware device is one of a content

addressable memory and a ternary content addressable memory [*see Kloth; fig. 4A,*

item 88; column 118, lines 17-35]. By this rationale **claim 12** is rejected.

Regarding claim 13: The combination of Vahalia - O'Toole, Jr.- Kloth teaches

the data routing system of Claim 1 I wherein the single list with entries is coded for

presentation to the hardware device [*see Kloth; column 118, lines 17-35*]. By this

rationale **claim 13** is rejected.

Response to Arguments

9.   Applicant's Request for Reconsideration filed on 10/24/2005 has been carefully

considered but is not deemed fully persuasive. However, because there exists the

likelihood of future presentation of this argument, the Examiner thinks that it is prudent

to address Applicants' main points of contention.

A. Applicant contends that to establish a prima facie case of obviousness, three

basic criteria must be met. First, there must be some suggestion or motivation,

either in the references themselves or in the knowledge generally available to

one of ordinary skill in the art, to modify the reference or to combine reference

teachings. Second, there must be a reasonable expectation of success. Finally,

the prior art reference (or references when combined) must teach or suggest all

the claim limitations. In teaching or suggestion to make the claimed combination

and the reasonable expectation of success, must both be found in the prior art

and not based on Applicants' disclosure. The initial burden is on the Examiner to

provide some suggestion of the desirability of doing what the inventor has done.

B. The Office Action cites Vahalia (Fig. 4, elements 61-64, and col. 6, lines 7-27) as teaching the first element of claim 1. Applicants respectfully submit that the cited portions of Vahalia simply teach linked lists, and simply acknowledge that entries in the linked lists described therein can be removed. Vahalia, as well as O'Toole, fail to teach the removal of non-terminating entries that results in the removal of all but a last non-terminating entry in any of the one or more lists. Nowhere in either reference, and certainly not in the skill in the art at the time of invention, can such a teaching be found. This is to be expected, of course, because neither Vahalia nor O'Toole is concerned with flattening an access control list, nor are these references concerned with preserving statistics when doing so.

C. Moreover, Vahalia fails to even recognize the existence of non-terminating entries, which explains Vahalia's failure to teach their removal. O'Toole does not remedy this infirmity. By leaving zero entries in the linked list, Vahalia fails to recognize the need for their removal, and given O'Toole's failure to teach the removal of such entries, the element in question cannot be made obvious by their combination.

D. Applicant contends that Vahalia and O'Toole, failing to even recognize the possibility of an impossible action, cannot be said to show, teach or suggest the elimination of such actions, as claimed in claim 1, for example. Furthermore,

given the foregoing arguments, Vahalia cannot be said to show, teach or suggest

the production of "a single list preserving tracing of the entries in the single list to

the plurality of entries" a fact which is correctly recognized in the Office Action.

E. In light of the foregoing arguments, Vahalia, even in light of O'Toole, the other

cited references and even the level of skill in the art at the time of invention

(which Applicant maintains is neither appropriate nor properly defined in the

Office Action), in any permissible combination, fails to make obvious the claimed

invention, as claimed in independent claims 1, 10 and 16-18. Moreover,

Applicant respectfully asserts that claims 2-9 and 1 1-15, which depend

from independent claims 1 and 10, are also allowable, for at least the foregoing

reasons.

10.   As to "Point A" it is the position of the Examiner that the three basic criteria

mentioned by the applicant are met in establishing a prima facie case of obviousness

in this Office Action. Of course, there exist some motivation to modify and combine the

teachings of the patents of Vahalia and O'Toogle. Vahalia, in column 3, lines 49-57,

discloses that "while the invention is susceptible to various modifications and alternative

forms, specific embodiments thereof have been shown by way of example in the drawings and

will be described in detail. It should be understood, however, that it is not intended to limit the

form of the invention to the particular forms shown, but on the contrary, the intention is to cover

all modifications, equivalents, and alternatives falling within the scope of the invention as

defined by the appended claims." Note that O'Toggle discloses in column 3, lines 24-30

that ..if the client computer stores the documents in a cache from which the client computer periodically retrieves the documents...whereas Vahalia discloses in column 3, lines 3-9 "...The client avatar makes it possible to store a single client personal profile at the client computer or an agency computer, rather than multiple personal profiles at multiple server computers, while at the same time limiting the release of certain information from the personal profile only to trusted servers or only upon specific authorization from the user..." An ordinary skill in the art will have reasonable expectation of success while all the claim limitations are satisfied.

As to "Point B", applicant rightfully admitted in page 7 of the response to argument dated 10/24/2005 that Vahalia teaches that entries in the linked lists can be removed. However, applicant argues that Vahalia, as well as O'Toole, fail to teach the removal of non-terminating entries that results in the removal of all but a last non-terminating entry in any of the one or more lists. Examiner respectfully disagree. This assertion on the part of the applicant is not correct based on the fact that Vahalia teaches in column 6, lines 10-17 "...each block includes a predetermined number of entries, and if the last entry in the block is not empty, then it points to a next block in the hash list. Except for the last entry of a block, an entry in the hash list is either zero (designated in the drawings as a crossed block) or is a pointer to one of the directory entries (55 in FIG. 3). A hash list entry is zero as a result of removing a pointer from the hash list..."

As to "Point C", see point B above.

As to "Point D", it is the position of the Examiner that the description of impossible action in the specification is insufficient and confusing (see *Claim Rejections - 35 USC § 112 obove*).

As to "Point E", it is the position of the Examiner that independent claims 1, 10 and 16-18, claims 2-9 and 1 1-15, which depend from independent claims 1 and 10, are not also allowable, for at least the foregoing reasons.

Conclusion

12.   Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11.   Any inquiry concerning this communication or earlier communications from

examiner should be directed to Jude Jean-Gilles whose telephone number is (571) 272-

3914. The examiner can normally be reached on Monday-Thursday and every other

Friday from 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, David Wiley, can be reached on (571) 272-3923. The fax phone number for

the organization where this application or proceeding is assigned is (703) 305-3719.

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is (703) 305-

3900.

Jude Jean-Gilles

Patent Examiner

Art Unit 2143

DAVID WILEY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

JJG

January 21, 2006